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***Amendments to the Claims***

***In the Claims:***

Claim 1 (currently amended) A method of characterizing an optical system comprising:

projecting ~~the~~ an image of a reticle, positioned in a reticle plane and having a plurality of periodic pattern features thereon, with the optical system;

detecting the image of the plurality of periodic pattern features in a plane oblique to the reticle plane; and

analyzing the image of the plurality of periodic pattern features to obtain information characterizing the optical system.

Claim 2 (currently amended) A method of characterizing an optical system as in claim 1 wherein:

the plurality of periodic pattern features ~~is~~ comprises a grating.

Claim 3 (currently amended) A method of characterizing an optical system as in claim 1 wherein:

the plurality of periodic pattern features ~~is~~ are a plurality of gratings.

Claim 4 (original) A method of characterizing an optical system as in claim 3 wherein:

the plurality of gratings comprises basket weaves, vertical lines, horizontal lines, and tilted lines.

Claim 5 (original) A method of characterizing an optical system as in claim 4 wherein:

a central portion is formed of repeating vertical lines, horizontal lines, and tilted lines.

Claim 6 (original) A method of characterizing an optical system as in claim 5, wherein:

the central portion is bounded by basket weaves.

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Claims 7 (original) A method of characterizing an optical system as in claim 1 wherein:

the image is recorded on a photosensitive substrate.

Claim 8 (currently amended) A method of characterizing an optical system having an optical axis comprising:

projecting an image of a reticle having a plurality of periodic pattern features therein through the optical system;

detecting the image of the reticle simultaneously at different locations and in a direction coaxial with the optical axis; and

analyzing the image to obtain characterization of the optical system.

Claim 9 (currently amended) A method of characterizing an optical system as in claim 8 wherein:

the plurality of periodic pattern features ~~comprises~~ comprise a plurality of rows of vertical, horizontal, and tilted lines.

Claim 10 (original) A method of characterizing an optical system as in claim 8 where:

the step of analyzing comprises using interferometry.

Claim 11 (original) A method of extracting optical parameters from an optical system having an optical axis comprising the steps of:

illuminating periodic patterns in an object plane of the optical system;

imaging the periodic patterns via the optical system;

intercepting and recording the image of the periodic patterns in an image volume of the optical system; and

analyzing a recorded image of the periodic patterns formed within the image volume,

whereby optical system parameters are extracted.

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Claim 12 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein:

the recorded image is tilted within the image volume.

Claim 13 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein:

the object plane is tilted with respect to the optical axis,

whereby a continuum of object positions as a function of field position is generated.

Claim 14 (original) A method of extracting optical parameters from an optical system as in claim 13 wherein:

the recorded image is tilted with respect to the optical axis.

Claim 15 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein:

the object plane and the recorded image are tilted orthogonally with respect to each other,

whereby a continuum of object positions in one axis and focus positions in another orthogonal axis is generated.

Claim 16 (original) A method of extracting optical parameters from an optical system as in claim 12 wherein:

an envelope of feature resolution through focus is extracted.

Claim 17 (original) A method of extracting optical parameters from an optical system as in claim 12 wherein:

astigmatism of the optical system is extracted as a function of periodic pattern orientation.

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Claim 18 (original) A method of extracting optical parameters from an optical system as in claim 12 wherein:

coma of the optical system is extracted as a second order distortion signature versus focus mapped across the field.

Claim 19 (original) A method of extracting optical parameters from an optical system as in claim 12 wherein:

spherical aberration of the optical system is extracted as a function of best focus difference between line sizes of the periodic pattern versus field position.

Claim 20 (original) A method of extracting optical parameters from an optical system as in claim 12 wherein:

optimum reticle or object position is extracted as a function of field position of minimum spherical aberration as seen by minimum best focus difference between line sizes.

Claim 21 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein:

the recorded image is analyzed using a dark field microscope.

Claim 22 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein:

the recorded image is analyzed using white light.

Claim 23 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein:

the recorded image is analyzed using a laser microscopic interferometer.

Claim 24 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein:

the recorded image is analyzed in a single exposure using a large aperture interferometer.

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Claim 25 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein the act of analyzing further comprises:

calculating best focus position.

Claim 26 (original) A method of extracting optical parameters from an optical system as in claim 11 wherein the act of analyzing further comprises:

calculating spherical aberrations.

Claim 27 (currently amended) An apparatus for characterizing an optical system comprising:

an optical system;

illumination means for projecting an image of a reticle having a plurality of periodic pattern features thereon within a volume of image space;

means for detecting the image at different locations comprising different depths of focus within the volume of image space;

means for analyzing the image and determining optical system imaging characteristics.

Claim 28 (Original) An apparatus for characterizing an optical system as in claim 27 wherein:

said means for analyzing the image and determining optical system imaging characteristics comprises analyzing interference patterns created by the image.

Claims 29-38 (cancelled)